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June 28, 1996

VIA MESSENGER

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: ET Docket No. 93-7
Notice of Ex Parte Communication

Dear Mr. Caton:

On Tuesday, June 25 and Thursday, June 27, 1996, representatives of Echelon Corporation ("Echelon") met with Staff of the Commission's Cable Services Bureau (William Johnson, Gary Laden, Ron Parver, Barrett Brick and John Wong), Office of General Counsel, Administrative Law Division (Stephen Bailey and Mary Beth Murphy) and Office of Engineering and Technology (Bruce Franca and Alan Stillwell) to discuss the captioned rulemaking proceeding. Echelon was represented by Oliver R. Stanfield, Vice President and Chief Financial Officer, and the undersigned counsel

The topics addressed during each of these meetings were (a) implementation of Section 301(f) of the Telecommunications Act of 1996, and (b) the *Joint Petition for Further Reconsideration* filed in this docket on May 28, 1996 by Apple Computer, Detroit Edison, Echelon, Global Village Communication, Kleiner Perkins Caufield & Byers, Novell, Stratacom and Sun Microsystems. Distributed during the meetings were copies of Echelon's June 25, 1996 presentation to the Cable-Consumer Electronics Compatibility Advisory Group ("C3AG") and a presentation of the same date to the C3AG by Richard Kirsche, co-chair of the EIA/NCTA Joint Engineering Committee, regarding the scope and functionality of the so-called "Decoder Interface." Copies of these documents are attached.

Pursuant to Section 1.1206 of the Commission's Rules, two copies this letter are enclosed for filing. Please contact me should you have any questions in regard to this matter.

Sincerely,

Glenn B Manishin

GBM:hs
Enclosures

042

ECHELON CORPORATION

Presentation to the Cable-Consumer Electronics Compatibility Advisory Group ("C3AG") June 25, 1996

- Issues to be reviewed with the C3AG:

  1. The draft IS-105.1 and IS-105.2 product design specifications (the "Specification") exceed the authority provided to the Federal Communications Commission under Section 301(f) of the Telecommunications Act of 1996.

  2. The Specification will not address the compatibility problems faced by consumers who today own more than 200 million televisions, and will strand consumer investment in such products.

  3. The Specification is inconsistent with the consumer electronics industry's efforts to promote adoption of regulations to transition the country to advanced digital television ("ATV") and will result in consumer confusion.

  4. The EIA/NCTA Joint Engineering Committee ("JEC") has proceeded with the Specification without addressing so-called "policy" issues raised by Echelon Corporation, deferring such matters for review by the C3AG for more than one and one-half years.

- Issues to be reviewed with ANSI and other authorized standards organizations:

  1. Policies developed to ensure openness, balance, fairness and consensus, and to avoid antitrust liability, have not been followed in the development of the Specification. The Specification is accordingly "tainted" and cannot be approved as an ANSI or other voluntary private industry standard.

  2. The AVBus Specification, IS-140, is intended to extend the anticompetitive effects of the Specification.

Section 301(f) of the Telecommunications Act of 1996

(f) CABLE EQUIPMENT COMPATIBILITY.—Section 624A (47 U.S.C. 544A) is amended—

(1) in subsection (a) by striking "and" at the end of paragraph (2), by striking the period at the end of paragraph (3) and inserting "; and"; and by adding at the end the following new paragraph:

"(4) compatibility among televisions, video cassette recorders, and cable systems can be assured with narrow technical standards that mandate a minimum degree of common design and operation, leaving all features, functions, protocols, and other product and service options for selection through open competition in the market.";

(2) in subsection (c)(1)—

(A) by redesignating subparagraphs (A) and (B) as subparagraphs (B) and (C), respectively; and

(B) by inserting before such redesignated subparagraph (B) the following new subparagraph:

"(A) the need to maximize open competition in the market for all features, functions, protocols, and other product and service options of converter boxes and other cable converters unrelated to the descrambling or decryption of cable television signals;"; and

(3) in subsection (c)(2)—

(A) by redesignating subparagraphs (D) and (E) as subparagraphs (E) and (F), respectively; and

(B) by inserting after subparagraph (C) the following new subparagraph:

"(D) to ensure that any standards or regulations developed under the authority of this section to ensure compatibility between televisions, video cassette recorders, and cable systems do not affect features, functions, protocols, and other product and service options other than those specified in paragraph (1)(B), including telecommunications interface equipment, home automation communications, and computer network services;".

Section 624A of the Communications Act of 1934
(47 U.S.C. § 544a)

AS RESTATED BY INCLUSION OF SECTION 301(F) OF THE TELECOMMUNICATIONS ACT OF 1996

(New language underscored)

§ 544a. Consumer electronics equipment compatibility

(a) Findings. The Congress finds that--

(1) new and recent models of television receivers and video cassette recorders often contain premium features and functions that are disabled or inhibited because of cable scrambling, encoding, or encryption technologies and devices, including converter boxes and remote control devices required by cable operators to receive programming;

(2) if these problems are allowed to persist, consumers will be less likely to purchase, and electronics equipment manufacturers will be less likely to develop, manufacture, or offer for sale, television receivers and video cassette recorders with new and innovative features and functions;

(3) cable operators should use technologies that will prevent signal thefts while permitting consumers to benefit from such features and functions in such receivers and recorders; and

(4) compatibility among televisions, video cassette recorders and cable systems can be assured with narrow technical standards that mandate a minimum degree of common design and operation, leaving all features, functions, protocols and other product and service options for selection through open competition in the market.

(b) Compatible interfaces.

(1) Report; regulations. Within 1 year after the date of enactment of this section [Oct. 5, 1992], the Commission, in consultation with representatives of the cable industry and the consumer electronics industry, shall report to Congress on means of assuring compatibility between televisions and video cassette recorders and cable systems, consistent with the need to prevent theft of cable service, so that cable subscribers will be able to enjoy the full benefit of both the programming available on cable systems and the functions available on their televisions and video cassette recorders. Within 180 days after the date of submission of the report required by this subsection, the Commission shall issue such regulations as are necessary to assure such compatibility.

(2) Scrambling and encryption. In issuing the regulations referred to in paragraph (1), the Commission shall determine whether and, if so, under what circumstances to permit cable systems to scramble or encrypt signals or to restrict cable systems in the manner in which they encrypt or scramble signals, except that the Commission shall not limit the use of scrambling or encryption technology where the use of such technology does not interfere with the functions of subscribers' television receivers or video cassette recorders.

(c) Rulemaking requirements.

(1) Factors to be considered. In prescribing the regulations required by this section, the Commission shall consider--

(A) the need to maximize open competition in the market for all features, functions, protocols and other product and service options of converter boxes and other cable converters unrelated to the descrambling or decryption of cable television signals;

(B) the costs and benefits to consumers of imposing compatibility requirements on cable operators and television manufacturers in a manner that, while providing effective protection against theft or unauthorized reception of cable service, will minimize interference with or nullification of the special functions of subscribers' television receivers or video cassette recorders, including functions that permit the subscriber--

(i) to watch a program on one channel while simultaneously using a video cassette recorder to tape a program on another channel;

(ii) to use a video cassette recorder to tape two consecutive programs that appear on different channels; and

(iii) to use advanced television picture generation and display features; and

(C) the need for cable operators to protect the integrity of the signals transmitted by the cable operator against theft or to protect such signals against unauthorized reception.

(2) Regulations required. The regulations prescribed by the Commission under this section shall include such regulations as are necessary--

(A) to specify the technical requirements with which a television receiver or video cassette recorder must comply in order to be sold as "cable compatible" or "cable ready";

(B) to require cable operators offering channels whose reception requires a converter box--

(i) to notify subscribers that they may be unable to benefit from the special functions of their television receivers and video cassette recorders, including functions that permit subscribers--

(I) to watch a program on one channel while simultaneously using a video cassette recorder to tape a program on another channel;

(II) to use a video cassette recorder to tape two consecutive programs that appear on different channels; and

(III) to use advanced television picture generation and display features; and

(ii) to the extent technically and economically feasible, to offer subscribers the option of having all other channels delivered directly to the subscribers' television receivers or video cassette recorders without passing through the converter box;

(C) to promote the commercial availability, from cable operators and retail vendors that are not affiliated with cable systems, of converter boxes and of remote control devices compatible with converter boxes;

(D) to ensure that any standards or regulations developed under the authority of this section to ensure compatibility between television, video cassette recorders, and cable systems do not affect features, functions, protocols and other product and service options other than those specified in paragraph (1)(B), including telecommunications interface equipment, home automation communications, and computer network services;

(E) to require a cable operator who offers subscribers the option of renting a remote control unit--

(i) to notify subscribers that they may purchase a commercially available remote control device from any source that sells such devices rather than renting it from the cable operator; and

(ii) to specify the types of remote control units that are compatible with the converter box supplied by the cable operator; and

(F) to prohibit a cable operator from taking any action that prevents or in any way disables the converter box supplied by the cable operator from operating compatibly with commercially available remote control units.

(d) Review of regulations. The Commission shall periodically review and, if necessary, modify the regulations issued pursuant to this section in light of any actions taken in response to such regulations and to reflect improvements and changes in cable systems, television receivers, video cassette recorders, and similar technology.

Legislative History of Section 301(f)—Excerpts

- [Section 301(f)] amends section 624A of the Communications Act to maximize the rate of competition and avoid unnecessary government intervention in the area of cable television equipment. *[It] directs the Commission to set only minimal standards when implementing regulations to assure compatibility between cable "set-top" boxes, televisions, and video cassette recorders*, and to rely on the marketplace for other features, services, and functions for basic compatibility. . . . [It] clarifies section 624A(c)(1)(A) further *to ensure that Commission efforts with respect to cable compatibility do not affect unrelated markets, such as computers or home automation communications, or result in a preference for one home automation protocol over another.* [H. Rep. No. 104-204, 104th Cong., 1st Sess. 111 (1995)]

- [A] provision that I authored . . . limits the role of the Federal Communications Commission in setting standards that may affect the computer and home automation industries. *It directs the FCC to set only minimal standards for cable equipment compatibility, maximize marketplace competition for all features and protocols unrelated to descrambling of cable programming, and ensure that the FCC's cable compatibility rules do not affect computer network services, home automation, or other types of telecommunications equipment.* [Rep. Anna Eshoo, 142 Cong. Rec. H1160 (daily ed. Feb. 1, 1996)]

- [T]he agency has taken our 1992 Cable Act—the source of the Commission's power to assure compatibility between televisions, VCR's, and cable systems—and gone far beyond what appropriate public policy requires or its statutory authority permits. The Commission's 1994 proposal for a decoder interface would make the television set the gateway to the burgeoning information superhighway, relegating the computer, and all other home appliances, to second-tier status. *It also would include one specific home automation protocol—called CEBus, or Consumer Electronic BUS—as the mechanism by which all cable-ready TV's and set-top boxes would communicate. My amendment prevents these consequences.* [Rep. Anna Eshoo, 142 Cong. Rec. H1160 (daily ed. Feb. 1, 1996)]

- I know that my colleagues on both side of the aisle don't want to stand in the way of technological innovation or consumer choice. When the Senate initially considered the legislation last May, Chairman Pressler observed that the computer industry has transformed America, and that computer industry competition has brought huge benefits to our homes, schools and workplaces, *These provisions preserve that competition, and keep the government away from premature standards setting.* [Sen. Dianne Feinstein, 142 Cong. Rec. S716 (daily ed. Feb. 1, 1996)]

- This section of the conference report prevents the FCC from standardizing any feature or protocols that are not necessary to descrambling, by preventing the selection of [a] home automation protocol as part of the FCC's cable compatibility regulations. It further prevents the FCC from affecting products in the computer or home automation industry in

any way. *Simply put, Section 301(f) leaves these standards to be set, as they should be, by competition in the marketplace.* [Sen. Wendell H. Ford, 142 Cong. Rec. S705 (daily ed. Feb. 1, 1996)]

- Under Section 301(f), the FCC is required to maximize marketplace competition and private standards, not the role of government regulations. *It is required to let the market resolve standards issues for emerging technologies and services—like satellite broadcasting, video-on-demand and home automation—and to keep its cable compatibility standards narrowly tailored to solve only the specific problems the 1992 act asked the FCC to handle. The decoder interface, with its artificial bottleneck for the television and its unnecessary impact on home automation, is far from the only approach to solving those limited problems. The Commission must rework its compatibility proposal.* It should also seek input from the computer, home automation and video dial tone industries, not just the cable television and consumer electronics industries. [Rep. Anna Eshoo, 142 Cong. Rec. H1161 (daily ed. Feb. 1, 1996)]

- [B]ecause even inadvertent or relatively small effects on emerging and rapidly changing markets can easily displace technological innovation, section 301(f) is weighted toward protecting competition and open markets. The accompanying Statement of Managers states that any material influence on unrelated markets is prohibited. *Because it is impossible for agencies or courts to judge whether the impact of technical standards in emerging markets would be harmful or substantial. Section 301(f) draws a bright line to avoid any regulatory impact whatsoever.* [Sen. Wendell H. Ford, 142 Cong. Rec. S705 (daily ed. Feb. 1, 1996)]

Comparison of the IS-105 Specification to the Statutory Authority of the Commission

- The Specification is not a "narrow technical standard".
  - ❶ The Specification is more than required to address the issues set forth in paragraph (c)1(B) of Section 624A.
  - ❷ From the 26-pin connector to the use of CAL, the Specification does not meet the requirements of the Act.
  - ❸ EIA/CEG's February 21, 1995 proposal to the FCC for a "descrambling-only interface" illustrates these points.
  - ❹ The Specification includes criteria for the interconnection of "Feature Units" providing functions other than conditional access.
- Adoption of the Specification would not "maximize competition" for all "features, functions [and] protocols" of set-top boxes.
  - ❶ The Specification incorporates EIA's CEBus® technology, and hence provides a preference for CEBus versus other home automation technologies. *E.g.*, EIA/CEG Aug. 15, 1994 Submission, at 8 ("The Decoder Interface message protocol is defined by EIA IS-60.")
  - ❷ The Specification freezes technical development in an emerging technology marketplace, including home automation.
  - ❸ Since two component descramblers are needed to perform "watch-and-record" (etc.) functions under IS-105, the Specification provides no advantage over "set-top" solutions aside from tuner-sharing, a product design choice that must be left to marketplace competition.
- Adoption of the Specification would "affect . . . telecommunications interface equipment, home automation communications, and computer network services."
  - ❶ Home automation technologies other the CEBus would require protocol converters and complicated installation scenarios.
  - ❷ The CEBus powerline technology, patented by Intellon Corporation, would preempt consumers' purchasing decisions with respect to powerline communication.
  - ❸ As Bell Atlantic advised the Commission more than a year ago, the Specification artificially positions the TV set as the "gatekeeper" to the integrated, broadband "information superhighway" of the future. Bell Atlantic Ex Parte Presentation, Slide 7 (May 31, 1995).

What About the Installed Base of TVs and VCRs?

- The Specification will not operate on any existing TVs and VCRs.
  1. Current TV and VCR products do not have the CEBus 26-pin connector.
  2. These products do not contain the CEBus hardware required to implement the CEBus protocol for decoder/TV/VCR communications.

- In order to solve the compatibility problems of paragraph (c)(1)(B) of Section 624(a), under IS-105 a consumer will need to:
  1. Purchase a new TV;
  2. Purchase a new VCR; and
  3. Purchase 2 Decoder Interface Units.

- Adoption of the Specification would necessitate the replacement of more than 200 million TVs and VCRs used today by American consumers, at a retail cost approaching $150,000,000,000 ($150 billion) or greater.
  1. Consumers may purchase either a new TV or VCR and then be surprised to find that they must then purchase the other unit, *and* 2 Decoder Interface Units.
  2. This analog equipment will be quickly made obsolete by digital technology.
  3. The "set-back" design of the Specification is incompatible with current and projected market trends in video interface equipment—e.g., DSS, SEGA Channel, etc.

What About ATV and HDTV?

- The consumer electronics Industry is aggressively promoting the adoption of digital ATV and high-definition television.

- This transition from analog to digital technology will be very costly:

  1. Consumers will need to purchase new TVs and VCRs at a cost of tens of billions of dollars.

  2. The Federal Government will forego billions of dollars in spectrum licensing fees.

  3. Broadcasters, and other providers of programming will make huge investments in production and broadcast equipment.

- The security portion of the conditional access problem is straight-forward in the digital domain—a smart card or PC Card—and does not require the Specification.

Consumer Electronics Compatibility

Tuesday June 25, 1996 at NCTA

Dick Kirsche

Joint Engineering Committee

Co-Chair

The Message

- There are Important Remaining Decoder Interface Issues
  - » Functions required
  - » Module Communications
  - » Testing
- FCC Deadlines
  - » Set top devices by December
  - » Consumer devices equipped a year from now

Agenda

- Fundamental Principle
- Decoder Interface Issues

Fundamental Principles

- Consumer purchasing a "cable ready" TV or VCR should be better off than the subscriber who uses a set top box
- Consequence: "cable ready" TV and VCR must be able to do everything which can be done with a set top box!
- This applies to all cable services, not just to basic!
- Applies to Digital as well as Analog

Fundamental Principles - cont.

- This requires intercommunications between
  - » TV & VCR
  - » Modules
  - » Consumer

Difficult Remaining Decoder Interface Issues

- Number of lines and degree of bi-directionality
- IR-Pass Through
- Testing

Difficult Remaining Decoder Interface Issues - cont.

- We need sufficient lines and bi-directionality for
  - » Two descramblers when TV & VCR are cabled together
  - » An analog and a simultaneous digital descrambler
  - » Video-inserted OSD built into the descrambler
  - » Video-inserted OSD in an add-on unit
  - » Sharing of one descrambler between TV and VCR without IF-switching

Difficult Remaining Decoder Interface Issues - cont.

- We need sufficient lines and bi-directionality for
  - » Baseband descrambling without requiring an IF input
- Full Command Set vs Reduced Command Sub-Set

Why Do We Need The IR Pass Through?

- Supports unique commands
- Reduces command latency
- Provides for future services

Testing

- Interface must be tested thoroughly in its final form

Navigation Devices

- Should the Decoder Interface be mandatory on Navigation Devices sold at retail?
- What would be the effective date?